

1     CLAIMS

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3     1.    A structural support beam for use in building  
4     and construction comprising a support frame defining  
5     at least one volume, said support frame being of a  
6     first material and said at least one volume being  
7     in-filled with a second material.

8

9     2.    A structural support beam as claimed in claim  
10    1, wherein the support frame comprises two spaced  
11    apart flanges connected by at least two outer  
12    support webs.

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14    3.    A structural support beam as claimed in claim  
15    2, wherein each outer support web connects lateral  
16    portions of the flanges.

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18    4.    A structural support beam as claimed in claim  
19    2 or 3, wherein one or more additional outer support  
20    web(s) is/are positioned over one or both of the  
21    existing outer support webs.

22

23    5.    A structural support beam as claimed in any of  
24    claims 2 to 4, wherein one or more inner support  
25    webs connect the flanges in an intermediate position  
26    between the outer support webs.

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28    6.    A structural support beam as claimed in any of  
29    claims 2 to 5, wherein one or more formations are  
30    provided in each flange to accommodate the outer  
31    support webs.

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1     7.    A structural support beam as claimed in claim  
2     5, wherein one or more formations are provided in  
3     each flange to accommodate the inner support web or  
4     webs.

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6     8.    A structural support beam as claimed in claim 6  
7     or 7, wherein the formations are one or more of  
8     grooves, recesses and cut-out portions.

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10    9.    A structural support beam as claimed in any of  
11    claims 2 to 5, wherein the flanges are rectangular  
12    in shape.

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14    10.   A structural support beam as claimed in claim  
15    9, wherein each flange is fully interposed between  
16    the outer support webs.

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18    11.   A structural support beam as claimed in any of  
19    claims 2 to 8, wherein each flange is provided with  
20    a reduced width portion to define a T-shaped flange.

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22    12.   A structural support beam as claimed in claim  
23    11, wherein each reduced width portion is fully  
24    interposed between the outer support webs.

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26    13.   A structural support beam as claimed in claim  
27    11, wherein the lateral edges of the other portions  
28    are adapted to be flush with the outer surfaces of  
29    the outer support webs.

30

31    14.   A structural support beam as claimed in claim  
32    11, wherein the lateral edges of the other portions

1 are adapted to extend beyond the outer surfaces of  
2 the outer support webs.

3

4 15. A structural support beam as claimed in any of  
5 claims 2 to 14, wherein a further end-flange is  
6 connected to the outer end of each existing flange.

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8 16. A structural support beam as claimed in claim  
9 15, wherein the lateral edges of each end-flange are  
10 adapted to be flush with the outer surfaces of the  
11 outer support webs.

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13 17. A structural support beam as claimed in claim  
14 15, wherein the lateral edges of each end-flange are  
15 adapted to extend beyond the outermost surfaces of  
16 the outer support webs.

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18 18. A structural support beam as claimed in any of  
19 claims 2 to 14, wherein metal end plates are  
20 connected to the outer end of each flange.

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22 19. A structural support beam as claimed in any of  
23 claims 15 to 17, wherein metal end plates are  
24 connected to the outer end of each end-flange.

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26 20. A structural support beam as claimed in any  
27 preceding claim, wherein the second material is less  
28 dense than the first material.

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30 21. A structural support beam as claimed in any  
31 preceding claim, wherein the second material is a  
32 plastics foam material.

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2 22. A structural support beam as claimed in any  
3 preceding claim, wherein the second material is  
4 adapted to give the support beam improved thermal  
5 and/or sound insulating properties.

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7 23. A structural support beam as claimed in any  
8 preceding claim, wherein the second material is  
9 adapted to give the support beam improved structural  
10 properties.

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12 24. A structural support beam as claimed in any  
13 preceding claim, wherein the support frame is made  
14 from timber materials.

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16 25. A structural support beam for use in building  
17 and construction comprising a timber based support  
18 frame formed from two spaced apart rectangular  
19 flanges connected by at least two outer support webs  
20 wherein the timber based support frame defines at  
21 least one volume in-filled with a plastics foam  
22 material; and wherein the plastics foam material is  
23 bonded to the flanges and webs.

24

25 26. A structural support beam as claimed in claim  
26 25, wherein the outer support webs extend over the  
27 full depth of the flanges.

28

29 27. A structural support beam as claimed in claim  
30 25 or 26, wherein the flanges are formed from solid  
31 or laminated timber material and the webs are formed  
32 from timber sheet material.

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2 28. A method of manufacturing the structural  
3 support beam of claim 1, said method comprising the  
4 steps of:

5 (i) connecting two spaced apart flanges by means of  
6 at least two outer support webs to form a support  
7 frame defining at least one volume; and

8 (ii) filling said at least one volume with an in-  
9 fill of material.

10

11 29. The method of claim 25, further comprising the  
12 additional step of bonding said in-fill of material  
13 to the support frame.

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15 30. The method of claim 25, further comprising the  
16 additional step of gluing and/or mechanically fixing  
17 the outer support webs to the flanges.

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